

CLAIMS

What is claimed is:

- 1 1. A method for selecting a power source for a device or delivery point from two or
2 more available power sources, the method comprising the steps of:
 - 3 (a) analyzing market and operational data related to the two or more available power
4 sources, and the device or delivery point;
 - 5 (b) selecting the power source for the device or delivery point from the two or more
6 available power sources based on a set of financial parameters; and
 - 7 (c) sending one or more signals to switch the device or delivery point to the selected
8 power source whenever the device or delivery point is not already connected to the selected
9 power source.
- 1 2. The method as recited in claim 1, wherein the step of sending one or more signals to
2 switch the device or delivery point to the selected power source whenever the device or
3 delivery point is not already connected to the selected power source comprises the steps of:
 - 4 whenever the device or delivery point is not already connected to the selected power
5 source, determining whether it is profitable to switch the device or delivery point to the
6 selected power source; and
 - 7 sending one or more signals to switch the device or delivery point to the selected
8 power source whenever it is profitable to switch the device or delivery point to the selected
9 power source.
- 1 3. The method as recited in claim 1, wherein the step of sending one or more signals to
2 switch the device or delivery point to the selected power source whenever the device or
3 delivery point is not already connected to the selected power source comprises the steps of:
 - 4 whenever the device or delivery point is not already connected to the selected power
5 source, determining whether a user has overridden switching the device or delivery point to
6 the selected power source; and

7 sending one or more signals to switch the device or delivery point to the selected
8 power source whenever the user has not overridden switching the device or delivery point to
9 the selected power source.

1 4. The method as recited in claim 1, further comprising the step of updating a display.

1 5. The method as recited in claim 1, further comprising the step of receiving market and
2 operational data related to the two or more available power sources, and the device or
3 delivery point.

1 6. The method as recited in claim 1, further comprising the step of repeating steps (a),
2 (b) and (c).

1 7. The method as recited in claim 6, wherein steps (a), (b) and (c) are periodically
2 repeated.

1 8. The method as recited in claim 6, wherein steps (a), (b) and (c) are repeated whenever
2 new market or operational data related to the two or more available power sources is
3 received.

1 9. The method as recited in claim 1, wherein the market and operational data is selected
2 from the group consisting of historical operating data, current operating data, contract data,
3 market data and financial data.

1 10. The method as recited in claim 1, wherein the set of financial parameters comprises
2 one or more operating models.

1 11. The method as recited in claim 1, wherein the set of financial parameters includes
2 operational cost data, switching cost data, minimum return, projections, market buy/sell
3 prices, contract buy/sell prices, fuel costs, electricity costs, target demand, maximum
4 demand, minimum connect times for each available power source, maximum switching cycle
5 over a specified period of time, emission limits, audible noise limits or user input data.

1 12. The method as recited in claim 1, wherein the one or more signals are sent via
2 computer network, a communications network, a wireless communications link, a direct
3 connection or combination thereof.

1 13. The method as recited in claim 1, wherein the one or more signals are manually sent
2 or implemented.

1 14. The method as recited in claim 1, wherein the delivery point is an electrical
2 connection to an electricity customer or a redelivery point to an electrical network.

1 15. The method as recited in claim 1, wherein the one or more available power sources is
2 an electricity source selected from the group consisting of one or more electrical network
3 connections, one or more combustion turbine generators, one or more steam turbine
4 generators, one or more batteries, one or more fuel cells, one or more solar cells, one or more
5 wind generators, one or more biomass generators and one or more hydroelectric generators.

1 16. The method as recited in claim 1, wherein the one or more available power sources is
2 a mechanical source selected from the group consisting of one or more engines, one or more
3 motors, one or more motor/generators and one or more turbines.

1 17. The method as recited in claim 1, wherein the device is selected from the group
2 consisting of a compressor and a pump.

1 18. The method as recited in claim 1, wherein the two or more available power sources
2 and the device or delivery point comprise a multi-source system.

1 19. The method as recited in claim 18, wherein steps (a), (b) and (c) are performed for
2 two or more multi-source systems.

1 20. The method as recited in claim 18, wherein the multi-source system comprises:
2 a first and second power source;
3 a first switch or coupling selectively connecting the first power source to the device
4 or delivery point;

5 a second switch or coupling selectively connecting the second power source to the
6 device or delivery point; and
7 a multi-source control system that monitors and/or controls the first power source, the
8 second power source, the first switch or coupling, the second switch or coupling and the
9 device or delivery point.

1 21. The method as recited in claim 1, wherein:

2 the two or more available power sources comprise a second network connection, one
3 or more electricity sources, and a combination of the second network connection and the one
4 or more electricity sources;

5 one or more electricity transfer devices are connected to the one or more electricity
6 sources; and

7 the device or delivery point comprises one or more third network connections, the one
8 or more third network connections connected to the second network connection and the one
9 or more electricity transfer devices.

1 22. The method as recited in claim 21, further comprising the step of determining
2 whether provide electricity from the one or more electricity sources to a first network
3 connection connected to the one or more electricity sources and the one or more electricity
4 transfer devices.

1 23. The method as recited in claim 21, wherein the one or more electricity transfer
2 devices is selected from the group consisting of one or more phase-shifting transformers, one
3 or more static transfer devices and one or more motor-generator packages.

1 24. The method as recited in claim 21, wherein the first network connection and the
2 second network connection are equivalent metering points connected to an electricity
3 transmission network.

1 25. The method as recited in claim 21, wherein the one or more third network
2 connections are electricity distribution feeders.

1 26. The method as recited in claim 1, wherein:
2 the device or delivery point comprises a machine;
3 the two or more available power sources comprise an engine and a motor/generator;
4 the engine coupled to the machine; and
5 the motor/generator coupled to the machine and an electrical network connection.

1 27. The method as recited in claim 26, wherein the engine is selected from the group
2 comprising a turbine and a variable speed engine.

1 28. The method as recited in claim 26, wherein the engine is coupled to the machine with
2 a clutch, a coupling or a gearbox.

1 29. The method as recited in claim 26, wherein the motor/generator is coupled to the
2 machine with a clutch, a coupling or a gearbox.

1 30. An apparatus for selecting a power source for a device or delivery point from two or
2 more available power sources comprising:
3 a user interface;
4 a market interface;
5 a multi-source interface;
6 a database; and
7 a processor communicably coupled to the user interface, the market interface, the
8 multi-source interface and the database, wherein the processor analyzes market and
9 operational data related to the two or more available power sources and the device or
10 delivery point, selects the power source for the device or delivery point from the two or more
11 available power sources based on a set of financial parameters and sends one or more signals
12 via the multi-source interface to switch the device or delivery point to the selected power
13 source whenever the device or delivery point is not already connected to the selected power
14 source.

1 31. The apparatus as recited in claim 30, wherein the processor sends the one or more
2 signals via the multi-source interface to switch the device or delivery point to the selected

3 power source whenever the device or delivery point is not already connected to the selected
4 power source by determining whether it is profitable to switch the device or delivery point to
5 the selected power source whenever the device or delivery point is not already connected to
6 the selected power source, and sending the one or more signals via the multi-source interface
7 to switch the device or delivery point to the selected power source whenever it is profitable to
8 switch the device or delivery point to the selected power source.

1 32. The apparatus as recited in claim 30, wherein the processor sends the one or more
2 signals via the multi-source interface to switch the device or delivery point to the selected
3 power source whenever the device or delivery point is not already connected to the selected
4 power source by determining whether a user has overridden switching the device or delivery
5 point to the selected power source whenever the device or delivery point is not already
6 connected to the selected power source, and sending one or more signals to switch the device
7 or delivery point to the selected power source whenever the user has not overridden
8 switching the device or delivery point to the selected power source.

1 33. The apparatus as recited in claim 30, wherein the processor updates a display via the
2 user interface.

1 34. The apparatus as recited in claim 30, wherein the processor receives market data via
2 the market interface, and operational data from the multi-source interface or the database.

1 35. The apparatus as recited in claim 30, wherein the multi-source interface comprises a
2 multi-source control system.

1 36. The apparatus as recited in claim 30, wherein:
2 the multi-source interface is one or more interfaces to the two or more available
3 power sources, and the device or delivery point; and
4 the processor monitors and controls the two or more available power sources, and the
5 device or delivery point via the multi-source interface.

1 37. The apparatus as recited in claim 30, wherein the processor periodically repeats the
2 analysis and selection process.

1 38. The apparatus as recited in claim 36, wherein the processor repeats the analysis and
2 selection process whenever new market or operational data related to the two or more
3 available power sources is received.

1 39. The apparatus as recited in claim 30, wherein the market and operational data is
2 selected from the group consisting of historical operating data, current operating data,
3 contract data, market data or financial data.

1 40. The apparatus as recited in claim 30, wherein the set of financial parameters
2 comprises one or more operating models.

1 41. The apparatus as recited in claim 30, wherein the set of financial parameters includes
2 operational cost data, switching cost data, minimum return, projections, market buy/sell
3 prices, contract buy/sell prices, fuel costs, electricity costs, target demand, maximum
4 demand, minimum connect times for each available power source, maximum switching cycle
5 over a specified period of time, emission limits, audible noise limits or user input data.

1 42. The apparatus as recited in claim 30, wherein the one or more signals are sent via
2 computer network, a communications network, a wireless communications link, a direct
3 connection or combination thereof.

1 43. The apparatus as recited in claim 30, wherein the one or more signals are manually
2 sent or implemented.

1 44. The apparatus as recited in claim 30, wherein the delivery point is an electrical
2 connection to an electricity customer.

1 45. The apparatus as recited in claim 30, wherein the one or more available power
2 sources is an electricity source selected from the group consisting of one or more electrical
3 network connections, one or more combustion turbine generators, one or more steam turbine
4 generators, one or more batteries, one or more fuel cells, one or more solar cells, one or more
5 wind generators, one or more biomass generators and one or more hydroelectric generators.

1 46. The apparatus as recited in claim 30, wherein the one or more available power
2 sources is a mechanical source selected from the group consisting of one or more engines,
3 one or more motors, one or more motor/generators and one or more turbines.

1 47. The apparatus as recited in claim 30, wherein the device is selected from the group
2 consisting of a compressor and a pump.

1 48. The apparatus as recited in claim 30, wherein the two or more available power
2 sources and the device or delivery point comprise a multi-source system.

1 49. The apparatus as recited in claim 30, wherein the processor performs the analysis and
2 selection process for two or more multi-source systems.

1 50. The apparatus as recited in claim 49, wherein the multi-source system comprises:
2 a first and second power source;
3 a first switch or coupling selectively connecting the first power source to the device
4 or delivery point;
5 a second switch or coupling selectively connecting the second power source to the
6 device or delivery point; and
7 a multi-source control system that monitors and/or controls the first power source, the
8 second power source, the first switch or coupling, the second switch or coupling and the
9 device or delivery point.

1 51. The apparatus as recited in claim 30, wherein:
2 the two or more available power sources comprise a second network connection, one
3 or more electricity sources, and a combination of the second network connection and the one
4 or more electricity sources;
5 one or more electricity transfer devices are connected to the one or more electricity
6 sources; and
7 the device or delivery point comprises one or more third network connections, the one
8 or more third network connections connected to the second network connection and the one
9 or more electricity transfer devices.

1 52. The apparatus as recited in claim 51, wherein the processor determines whether to
2 provide electricity from the one or more electricity sources to a first network connection
3 connected to the one or more electricity sources and the one or more electricity transfer
4 devices.

1 53. The apparatus as recited in claim 51, wherein the one or more electricity transfer
2 devices is selected from the group consisting of one or more phase-shifting transformers, one
3 or more static transfer devices and one or more motor-generator packages.

1 54. The apparatus as recited in claim 51, wherein the first network connection and the
2 second network connection are equivalent metering points connected to an electricity
3 transmission network.

1 55. The apparatus as recited in claim 51, wherein the one or more third network
2 connections are electricity distribution feeders.

1 56. The apparatus as recited in claim 30, wherein:
2 the device or delivery point comprises a machine;
3 the two or more available power sources comprise an engine and a motor/generator;
4 the engine is coupled to the machine; and
5 the motor/generator is coupled to the machine and an electrical network connection.

1 57. The apparatus as recited in claim 56, wherein the device is selected from the group
2 consisting of a compressor and a pump.

1 58. The apparatus as recited in claim 56, wherein the engine is selected from the group
2 comprising a turbine and a variable speed engine.

1 59. The apparatus as recited in claim 56, wherein the engine is coupled to the machine
2 with a clutch, a coupling or a gearbox.

1 60. The apparatus as recited in claim 56, wherein the motor/generator is coupled to the
2 machine with a clutch, a coupling or a gearbox.

1 61. The apparatus as recited in claim 30, wherein:
2 the device or delivery point comprises a machine;
3 the two or more available power sources comprise an engine and a motor/generator;
4 the engine is coupled to the motor/generator; and
5 the motor/generator is coupled to the machine and an electrical network connection.

1 62. The apparatus as recited in claim 61, wherein the device is selected from the group
2 consisting of a compressor and a pump.

1 63. The apparatus as recited in claim 61, wherein the engine is selected from the group
2 comprising a turbine and a variable speed engine.

1 64. The apparatus as recited in claim 61, wherein the engine is coupled to the machine
2 with a clutch, a coupling or a gearbox.

1 65. The apparatus as recited in claim 61, wherein the motor/generator is coupled to the
2 machine with a clutch, a coupling or a gearbox.

1 66. A computer program embodied on a computer readable medium for selecting a power
2 source for a device or delivery point from two or more available power sources, the computer
3 program comprising:
4 a code segment for analyzing market and operational data related to the two or more
5 available power sources, and the device or delivery point;
6 a code segment for selecting the power source for the device or delivery point from
7 the two or more available power sources based on a set of financial parameters; and
8 a code segment for sending one or more signals to switch the device or delivery point
9 to the selected power source whenever the device or delivery point is not already connected
10 to the selected power source.

1 67. The computer program as recited in claim 66, wherein the code segment for sending
2 one or more signals to switch the device or delivery point to the selected power source
3 whenever the device or delivery point is not already connected to the selected power source
4 comprises:

5 a code segment for determining whether it is profitable to switch the device or
6 delivery point to the selected power source whenever the device or delivery point is not
7 already connected to the selected power source; and

8 a code segment for sending one or more signals to switch the device or delivery point
9 to the selected power source whenever it is profitable to switch the device or delivery point to
10 the selected power source.

1 68. The computer program as recited in claim 66, wherein the code segment for sending
2 one or more signals to switch the device or delivery point to the selected power source
3 whenever the device or delivery point is not already connected to the selected power source
4 comprises:

5 a code segment for determining whether a user has overridden switching the device or
6 delivery point to the selected power source whenever the device or delivery point is not
7 already connected to the selected power source; and

8 a code segment for sending one or more signals to switch the device or delivery point
9 to the selected power source whenever the user has not overridden switching the device or
10 delivery point to the selected power source.

1 69. The computer program as recited in claim 66, further comprising a code segment for
2 updating a display.

1 70. The computer program as recited in claim 66, further comprising a code segment for
2 receiving market and operational data related to the two or more available power sources,
3 and the device or delivery point.

1 71. The computer program as recited in claim 66, further comprising a code segment for
2 repeating the analysis, selecting and sending processes.

1 72. The computer program as recited in claim 71, wherein the analysis, selecting and
2 sending processes are periodically repeated.

1 73. The computer program as recited in claim 71, wherein the analysis, selecting and
2 sending processes are repeated whenever new market or operational data related to the two or
3 more available power sources is received.

1 74. The computer program as recited in claim 66, wherein the market and operational
2 data is selected from the group consisting of historical operating data, current operating data,
3 contract data, market data and financial data.

1 75. The computer program as recited in claim 66, wherein the set of financial parameters
2 comprises one or more operating models.

1 76. The computer program as recited in claim 66, wherein the set of financial parameters
2 includes operational cost data, switching cost data, minimum return, projections, market
3 buy/sell prices, contract buy/sell prices, fuel costs, electricity costs, target demand, maximum
4 demand, minimum connect times for each available power source, maximum switching cycle
5 over a specified period of time, emission limits, audible noise limits or user input data.

1 77. The computer program as recited in claim 66, wherein the one or more signals are
2 sent via computer network, a communications network, a wireless communications link, a
3 direct connection or combination thereof.

1 78. The computer program as recited in claim 66, wherein the one or more signals are
2 manually sent or implemented.

1 79. The computer program as recited in claim 66, wherein the delivery point is an
2 electrical connection to an electricity customer or a redelivery point to an electrical network.

1 80. The computer program as recited in claim 66, wherein the one or more available
2 power sources is an electricity source selected from the group consisting of one or more
3 electrical network connections, one or more combustion turbine generators, one or more
4 steam turbine generators, one or more batteries, one or more fuel cells, one or more solar
5 cells, one or more wind generators, one or more biomass generators and one or more
6 hydroelectric generators.

1 81. The computer program as recited in claim 66, wherein the one or more available
2 power sources is a mechanical source selected from the group consisting of one or more
3 engines, one or more motors, one or more motor/generators and one or more turbines.

1 82. The computer program as recited in claim 66, wherein the device is selected from the
2 group consisting of a compressor and a pump.

1 83. The computer program as recited in claim 66, wherein the two or more available
2 power sources and the device or delivery point comprise a multi-source system.

1 84. The computer program as recited in claim 83, wherein the analysis, selection and
2 sending processes are performed for two or more multi-source systems.

1 85. The computer program as recited in claim 83, wherein the multi-source system
2 comprises:
3 a first and second power source;
4 a first switch or coupling selectively connecting the first power source to the device
5 or delivery point;
6 a second switch or coupling selectively connecting the second power source to the
7 device or delivery point; and
8 a multi-source control system that monitors and/or controls the first power source, the
9 second power source, the first switch or coupling, the second switch or coupling and the
10 device or delivery point.

1 86. The computer program as recited in claim 66, wherein:
2 the two or more available power sources comprise a second network connection, one
3 or more electricity sources, and a combination of the second network connection and the one
4 or more electricity sources;
5 one or more electricity transfer devices are connected to the one or more electricity
6 sources; and

7 the device or delivery point comprises one or more third network connections, the one
8 or more third network connections connected to the second network connection and the one
9 or more electricity transfer devices.

1 87. The computer program as recited in claim 86, further comprising a code segment for
2 determining whether to provide electricity from the one or more electricity sources to a first
3 network connection connected to the one or more electricity sources and the one or more
4 electricity transfer devices.

1 88. The computer program as recited in claim 86, wherein the one or more electricity
2 transfer devices is selected from the group consisting of one or more phase-shifting
3 transformers, one or more static transfer devices and one or more motor-generator packages.

1 89. The computer program as recited in claim 86, wherein the first network connection
2 and the second network connection are equivalent metering points connected to an electricity
3 transmission network.

1 90. The computer program as recited in claim 86, wherein the one or more third network
2 connections are electricity distribution feeders.

1 91. A computer program as recited in claim 66, wherein:
2 the device or delivery point comprises a machine;
3 the two or more available power sources comprise an engine and a motor/generator;
4 the engine coupled to the machine; and
5 the motor/generator coupled to the machine and an electrical network connection.

1 92. The computer program as recited in claim 91, wherein the engine is selected from the
2 group comprising a turbine and a variable speed engine.

1 93. The computer program as recited in claim 91, wherein the engine is coupled to the
2 machine with a clutch, a coupling or a gearbox.

- 1 94. The computer program as recited in claim 91, wherein the motor/generator is coupled
- 2 to the machine with a clutch, a coupling or a gearbox.